

Idaho Currents

Idaho Energy Producers Show Interest In Renewable Resource Projects

Editor's note: As Idaho faces the prospect of its sixth straight year of drought, energy producers are looking at renewable resources in the state other than water for power production. This issue of Idaho Currents looks at three sites that are contributing to energy production.

With Idaho ranking 13th in the nation for wind power capability, Idaho Power Company has been watching the development of several renewable energy sites in its service area. As of the end of 2004, it had signed agreements to purchase energy from two wind farms and a geothermal company.

Lewandowski Wind Farm – Bob Lewandowski, who lives in Elmore County near Mountain Home, raised his first wind turbine in April 2002 after studying the prospects of wind production for nearly 30 years. Now his three-turbine wind farm produces an annual average output of 80 kilowatts of electricity – enough energy to supply the electricity needs of 66 average Idaho homes.

Fossil Gulch Wind Park – In November Montana-based Exergy Development Group agreed to sell 10.5 megawatts of power to Idaho Power Company. The energy is generated from seven wind turbines at Fossil Gulch Wind Park 3.5 miles west of Hagerman. The wind park provides enough power for 2,884 average homes in Idaho.

Raft River Geothermal Power Plant – Under a 20-year contract, U.S. Geothermal has agreed to sell up to 10 average megawatts per month to Idaho Power Company.

The Boise-based geothermal company is building a geothermal generating facility near Malta in Southern Idaho. When completed in mid-2006, it is expected to be the first geothermal power plant in the Pacific Northwest.



Visitors to Bob Lewandowski's wind farm near Mountain Home brave the cool morning air to watch the 150-foot high wind generator turn toward the oncoming wind. The turbine is one of three at the site. (Photo by Mike Keckler)

Idaho Farmer Harvests The Wind

By Linda Cawley, *Idaho Currents* Editor

Bob Lewandowski is a modern-day pioneer who, for more than 30 years, has dreamed of harnessing the wind at his home near Mountain Home.

His father bought the land about 50 years ago and tried to grow crops. No matter what he tried, the wind blew everything away, including seed, topsoil and rain.

Lewandowski knew there must be a way to use the wind. He began experimenting with homemade wind measurement devices in about 1972 at his home in the same location as his father's farm.

He designed his first anemometer with four cups made from pantyhose containers and secured it to the front

bumper of his 1972 Ford station wagon. He then drove the car up and down the highway at different speeds upwind and downwind, and calibrated it to the car's speedometer.

"It had a dual digital readout for current wind velocity and resettable maximum wind velocity, and worked quite well," says Lewandowski. "It was then placed on top of a homemade 120-foot tower at the present turbine location and performed faithfully for 24 years when it finally blew apart from wear and old age."

Fast forward to February 2000. Lewandowski re-visited his dream and began developing his wind project on his property. Idaho Power Company reached an agreement with Lewandowski to purchase the power before October 2002, paving the way for the first commercial wind farm in Idaho.

The first of three 108-kilowatt turbines began generating electricity in late October 2002, and the second turbine went on line about 21 months later. The power feeds into the electric grid and is balanced by the electricity use of his nearby Mountain Home neighbors.

Finally, five years later on Feb. 15, Lewandowski's dream came to fruition when he released the brake on the third wind generator of his wind farm. Slowly the generator turned toward the oncoming wind and the blades began to turn.

Each turbine is mounted on a 152-foot tower – taller than a 15-story building. With the addition of the third turbine, the wind farm is capable of generating 324 kilowatts of electricity. Considering variations in wind, the turbines provide an average annual output of about 80 kW. This is enough energy to supply the electricity needs of 66 average Idaho homes.

Lewandowski's efforts have been observed by wind power enthusiasts both locally and nationally. Before he released the brake on his third turbine, the Idaho Energy Division presented him with a plaque honoring him for his dedication in promoting and pioneering wind energy in Idaho. It's apparent that Idaho is ready to join other states in wind generation.



Standing in the shadow of a wind turbine, Bob Lewandowski, left, looks toward a television camera while discussing his wind power generation system – the first such system in Idaho. (Photo by Mike Keckler)



Water Officials See Bleak Forecasts For 2005



Ron Abramovich, right, measures the water content in the snow at Mores Creek on March 1 while Mike Keckler, IDWR information officer, records the data. Their findings: the third lowest water content since 1941. (IDWR Photo)

The prospect that Idaho is facing its sixth year of drought is almost certain, according to members of the Idaho Water Supply Committee.

Snow pack levels are down considerably in most parts of Idaho, and it will be almost impossible to make up the difference this late in the water accumulation season. Even more significant is the fact that the water content this year on March 1 was just slightly less than the same time in 2001, which was considered a very dry year in the recent past.

Figures obtained during a trip to Mores Creek on March 1 to measure the snow pack showed the third driest year on record at that site, according to Ron

Abramovich, water supply specialist with the Natural Resources Conservation Service (NRCS).

The 30-year average on March 1 at Mores Creek is 28 inches of water content, 83 inches of snow depth. The breakdown since 1941 shows:

- **1977** – 4 inches of water content, 26 inches of snow depth
- **1963** – 11.6 inches of water content
- **2005** – 13.4 inches of water content, 46 inches of snow depth
- **2001** – 14.9 inches of water content

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Idaho Sees Its First Utility-Scale Wind Park Produce Energy

People in the small town of Hagerman, located in a canyon known for producing a myriad of springs coming from the rock walls, have something new to brag about – Fossil Gulch Wind Park, the largest utility-scale wind farm in Idaho.

The park's seven 1.5 megawatt wind turbines, each rising 388 feet from base to tip, have the capacity of creating 28,000 megawatt-hours annually. One megawatt is enough power for about 650 homes for one year.

For years David Bloxham grew sugar beets and potatoes on the 416-acre site, but lately he's watched each turbine, taller than a 38-story building, take shape in about eight hours. At one point this winter the construction had to stop for a few days because the wind was actually blowing too hard to work on the towers.

Under a 20-year agreement approved by the Idaho Public Utilities Commission, Idaho Power Company will purchase 10.5 MW of power generated from the turbines. Exergy Development Group based in Great Falls, Montana, owns the wind park and leases the land from Bloxham.

DOE Grant Will Help Finance Geothermal Plant Near Raft River

With the prospect of Idaho facing the sixth straight year of drought, energy producers are investing in other renewable resources in the state for electric power production.

Boise-based U.S. Geothermal is the recipient of a \$2.2 million financial assistance award from the U.S. Department of Energy to help support a new 10-megawatt power plant at Raft River Geothermal Power Generation Site in Cassia County.

Roy Mink, Geothermal Technologies Program director with DOE, presented the award to Doug Glaspey with U.S. Geothermal on Jan. 29. Both U.S. Senator Larry Craig and U.S. Congressman C.L. "Butch" Otter attended the ceremony at the Idaho Department of Water Resources in Boise along with IDWR Director Karl Dreher, and Robert Hoppie, Energy Division administrator.

When complete, the new plant is expected to be the first geothermal power plant in the Pacific Northwest. U.S. Geothermal is a renewable energy development company. The Raft River plant, with a total budget of \$19.5 million, is the company's first development project.

The power plant will use a new type of ammonia-water-based binary cycle, which uses a working fluid with a lower boiling point than water. After being heated by the geothermal water, the working fluid flashes to steam and drives the turbines. The working fluid condenses and is re-used. The geothermal water is re-injected into the ground water after the heat is extracted.

Temperatures in the geothermal reservoir at Raft River range from 275 degrees to 300 degrees F (135-149 degrees C). The plant will have more than 3,700 acres of geothermal potential to tap.

Original DOE project

The U.S. Department of Energy originally operated the site as a geothermal demonstration project from 1974 to 1982. It included the drilling of five production wells, two injection wells and seven monitoring wells.

The project demonstrated that 7 megawatts of electricity could be successfully generated using the geothermal waters. When the project was shut down in 1982, the wells were capped and the facility sold.

U.S. Geothermal signed a Power Purchase Agreement with Idaho Power Company on Jan. 5, paving the way for the project's construction. Under a 20-year contract, U.S. Geothermal agrees to sell up to 10 average megawatts per month to Idaho Power.

The facility will interconnect with the Raft River Rural Electric Cooperative system and send its energy to Idaho Power over transmission lines owned by the co-op and the Bonneville Power Administration.

At Raft River, a secondary use of the heat will be for an aquaculture operation called Idaho RedClaw. Crayfish, also known as fresh water lobsters, which are native to Australia, will be grown in water heated by the geothermal fluids. Idaho RedClaw has already set up business at the Raft River site, but the product has not been marketed yet.

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"We have less than half of the winter remaining and a rather large water deficit to overcome," said Abramovich in a February report. "We need a great deal of precipitation to replenish the depleted snow pack across the state.

"Unfortunately, weather models have forecast warmer and drier conditions than average over the next three months."

The Water Supply Committee includes water managers and hydrology experts from both the public and private sector. Additional information about Idaho's water supply and other water issues are available online at www.idwr.idaho.gov.